

Opilionids of the suborder Gonyleptomorphi from the American caves, collected by Dr. Pierre Strinati

by

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With 32 figures

ABSTRACT

Pachyloides aelleni n. sp. (Uruguay), *Isocranus strinatii* n. sp., *Rhopalocranaus bordoni* n. sp., *Leiostenus leiobuniformis albidecoratus* n. ssp. (all from Venezuela), *Ancistrotellus hauseri* n. sp. (Brazil), and *Arganotus strinatii* n. sp. (Guatemala) are described and figured.

The first study on a considerable and very interesting collection of cave opilionids from the Museum of Natural History of Geneva, made by Dr Pierre Strinati in course of his zoological expeditions in America (1968-1973) was published in 1974 (ŠILHAVÝ). This paper gives—as results of my later researches—a list of seven species and one subspecies from the suborder Gonyleptomorphi, found in Guatemala, Venezuela, Uruguay and Brazil. Of them, five species and one subspecies are new.

Only the data from the localities, written by the collector on the labels, are mentioned in this paper. Further details about biotopes are given in the lists of STRINATI (1971, 1977).

I have been able to treat the collection through the generosity of Dr V. Aellen, director of the Museum of Natural History in Geneva. I wish to thank especially Dr. Bernd Hauser, curator in Arthropods of this museum, who met all my wishes with an exceptional amiability in the course of my stay in Geneva.

Holotypes, allotypes and paratypes are deposited in the collections of the Museum of Natural History in Geneva, some paratypes are in my collection.

SYSTEMATICAL REVIEW

Suborder GONYLEPTOMORPHI

Fam. **Gonyleptidae** Sund., 1833Subfam. **Pachylospeleinae** Šilh., 1974*Pachylospeleus* Šilh., 19741. *Pachylospeleus strinatii* Šilh., 1974Subfam. **Pachylinae** Sør.-Roewer, 1913*Pachyloides* Holmberg, 18782. *Pachyloides aelleni* sp. n.Subfam. **Cranainae** Rwr., 1913*Isocranaus* Rwr., 19153. *Isocranaus strinatii* sp. n.*Rhopalocranaus* Rwr., 19134. *Rhopalocranaus bordoni* sp. n.Subfam. **Mitobatinae** Simon, 1979*Ancistrotellus* Rwr., 19235. *Ancistrotellus hauseri* sp. n.Fam. **Agoristenidae** Šilh., 1973Subfam. **Leiosteninae** Šilh., 1973*Leiostenus* Šilh., 19736. *Leiostenus leiobuniformis albidecoratus* ssp. n.Fam. **Phalangodidae** Simon, 1879Subfam. **Samoinae** (Sørensen) Rwr., 1912*Arganotus* Šilh., 19777. *Arganotus strinatii* sp. n.Subfam. **Phalangodinae** (Simon) Rwr., 1912*Kalominua* Henriksen et Sørensen, 19328. *Kalominua bicolor* H. et S., 1932***Pachylospeleus strinatii* Šilh., 1974**

Brazil, Sao Paulo, Grutas das Areias, 29-30 VII 1968, P. Strinati leg., 10 specimens: male holotype, female allotype, 2 ♂ adult, 1 ♂ subadult, 1 ♀ juvenile and 3 pulli.

***Pachyloides aelleni* sp. n. (Figs. 1-6)**

Male Holotype: Body length 7,5 mm. Eyemound removed from the frontal margin of carapace, hemispherical, with a pair of great tubercles. Carapace on the frontal margin before the eyemound with one hump, without granulations, smooth. First area

with a median line and similarly as areas 2-4 with irregularly disposed low tubercles, area 5 with a row of greater tubercles, joined at the lateral boundaries of scute which are provided with one row of very low tubercles. Free tergites with similar row of tubercles, anal plate with some scattered tubercles. Coxae smooth, only with very short

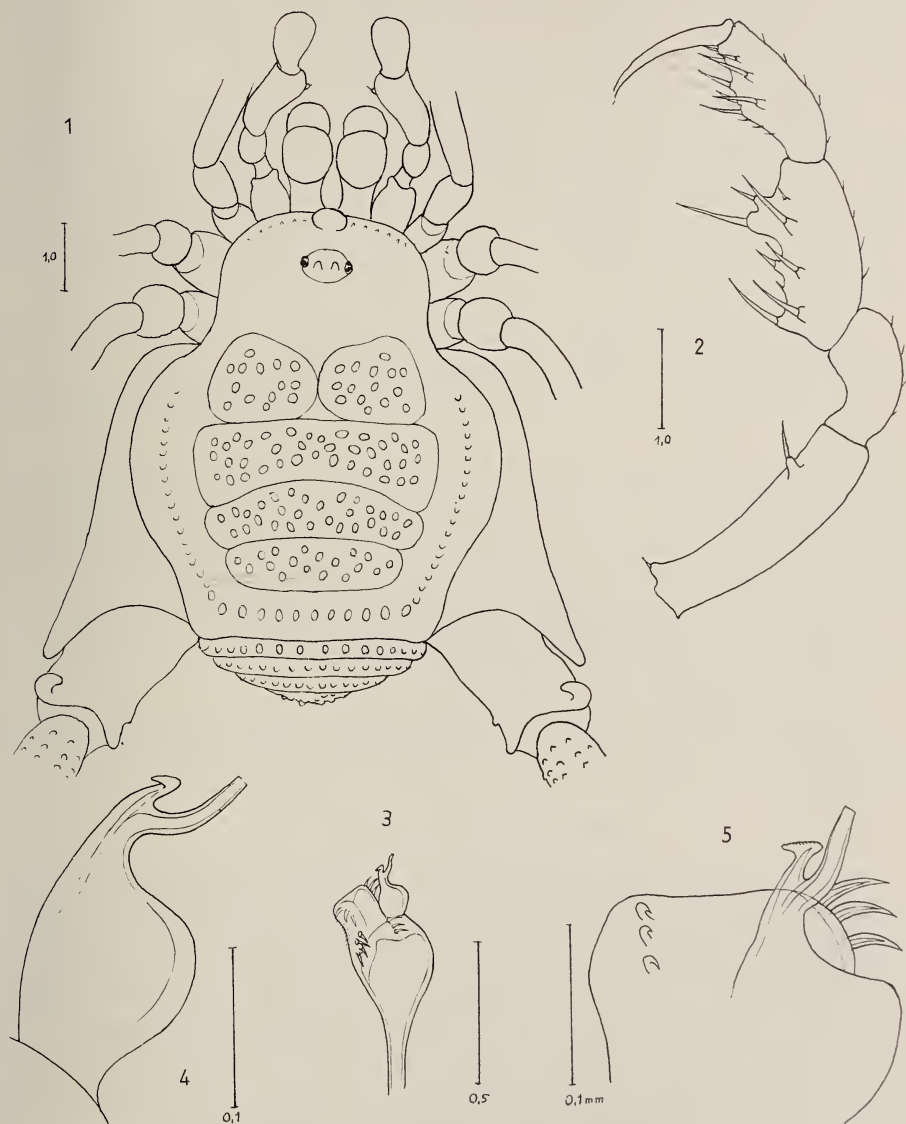


FIG. 1-5.

Pachyloides aelleni sp. n., male holotype

1. Dorsal view of body; 2. Pedipalpus from medial aspect; 3. Distal part of penis; 4. Stilus of penis from lateral aspect; 5. Stilus of penis from ventral aspect.

scattered hairs. Coxae 4 on the dorsal portion with one tooth directed posterolaterally. All free sternites only with one row of short hairs.

Chelicerae small, unarmed, only with few short scattered hairs.

Pedipalps 6,8 mm long (without claw). Trochanters ventrally with one hair pointed tubercle. Femora ventrobasally with one hair pointed tubercle, at the medioapical portion with one hair pointed tubercle too. Patellae unarmed, tibiae ventrolaterally with two spinebearing tubercles and one tooth arose from confusion of two or three spines, ventromedially with four spines, tarsi ventrolaterally with four, ventromedially with three spinebearing tubercles. Tarsal claws long and curved.

Legs 12,0 - 20,0 - 15,0 - 21,5 mm long. Legs 1 - 3 only with rows of very little and short hairs. Trochanters 4 ventrally with three small blunt teeth, dorsally with greater blunt and medially curved tooth lying opposite the great tooth of fourth coxae. Femora 4 with rows of blunt tubercles which are greater on the ventral side and tipped by very fine short hair. At the articulation with patella are ventromedially greater teeth of which the medial one is the greatest. Other segments only with rows of short hairs. Tarsal segments 6, 10, 7, 8, distitarsi of both legs 1 and 2 with three segments.

Penis of the form shown in Figs. 3-5.

Colour (in alcohol) of body yellowish pale, extremities are lighter. The summits of tubercles on the fourth femora are reddish brown pale.

Male holotype locality: Uruguay, Gruta de Arequita, Lavalleja, 15.II.1968, P. Strinati leg.

Male paratype: Body length 6,8 mm. Morphologically not very differing from the male holotype, only fourth coxae are smaller, not so laterally widened, armature of them and of femora 4 is smaller. Penis of the same form as in male holotype. Colour of body red brown, areae and free tergites are darker brown. Trochanters, femora, patellae and tibiae of legs 4 are reddish brown, remaining extremities, metatarsi and tarsi of legs 4 are yellowish white. Most light are the pedipalps.

Locality of this paratype is the same as his of male holotype, both specimens were in the same vial.

No other specimen is in the collection.

Relations. This new species of the South American genus *Pachyloides* is related to *P. fallax* Mello Leitão, 1932. It differs mainly in the armature of the eyemound and of femora 4.

Isocranaus strinatii sp. n. (Figs. 6-10)

Male holotype: Body length 5,65 mm. Eyemound removed from the frontal margin, with two short and blunt spines. Carapace smooth, without spines or tubercles, only the frontal margin in the middle with one tubercle and at the lateral corner with three tubercles. First area with a median line. Areae 1 and 3 with a pair of spines which are longer on the area, 3 other areae unarmed. Free tergites 1 and 2 smooth, unarmed, free tergite 3 with a pair of short blunt spines; anal plate with two tubercles. Coxae smooth, coxae 1-3 with a longitudinal row of tubercles which are on the coxae 1 greater. Coxae 4 with irregularly disposed, scattered, low and small tubercles. Dorsal portion of coxae 4 with one slim and relatively short spine directed lateroposteriorly. Free sternites only with one row of very low and small hair pointed tubercles.

Chelicerae small, not enlarged, dim-shinning, with a dorsal elevation.

Pedipalps 6,1 mm long (without claw), dorsally unarmed. Trochanters ventrally with two blunt tubercles, dorsally with one tubercle. Femora only ventrally basally with one hair pointed tubercle, apicomedial portion unarmed. Patellae unarmed, tibiae

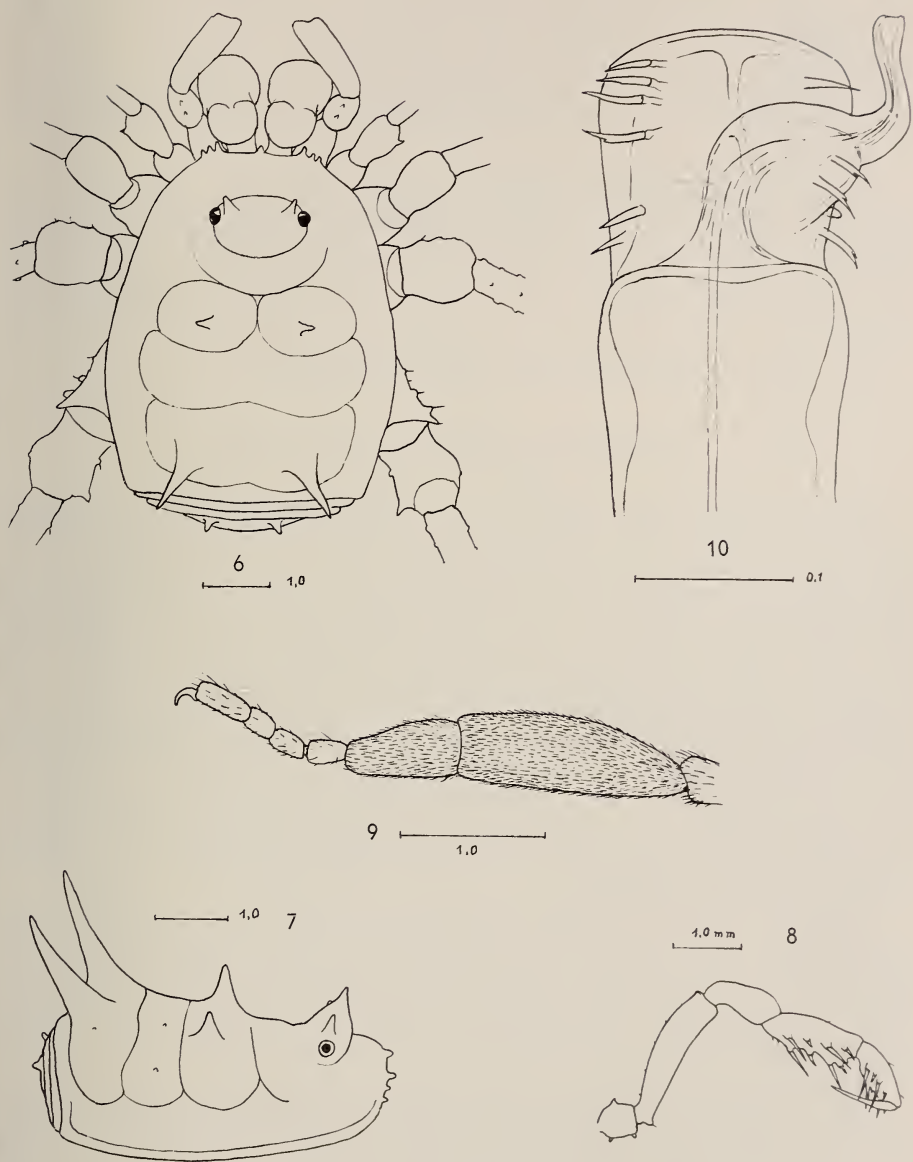


FIG. 6-10.

Isocranus strinatii sp. n., male holotype

6. Dorsal view of body; 7. Lateral view of dorsal cutes;
8. Pedipalpus from medial aspect; 9. Tarsus of first leg; 10. Distal part of penis from dorsal aspect.

and tarsi ventrolaterally as well as ventromedially with four spines of which 1 and 3 ones are greater. Claws not very curved and relatively long (about so long as tarsi).

Legs 16 - 36 - 22 - 31 mm long, slim. Trochanters 3 and 4 with some hair pointed tubercles, other segments cylindrical. Legs 1 only with hairs, femora 2 and 3 with rows of very low hair pointed tubercles. Tarsal segments 6, 14, 7, 7, distitarsi of legs 1 and 2 with three segments. Two basal segments of first tarsi swollen—characteristic for males of subfamily.

Penis of the form shown in Fig. 10.

Colour (in alcohol) of body reddish brown. Free sternites are dark brown, areae dark brown reticulated, spines of areae blackish brown. Tubercles of tergite 3 yellowish. Chelicerae, pedipalps and trochanters of legs yellowish with black brown reticulations, legs to apical portions darker.

Holotype locality: Venezuela, Monagas, Cueva del Guacharo, 18.II.1968, P. Strinati leg.

No other specimens of this species are in the collection.

***Rhopalocranaus bordoni* sp. n. (Figs. 11-14)**

Male holotype: Body length 5,6 mm. Carapace smooth, provided in the middle of the frontal margin with one short blunt spine and on the lateral corners with one row of about five blunt spines, behind the eyemound with a pair of low tubercles. Eyemound distinctly separated from the frontal margin, armed with two spines and behind them with a pair of tubercles. Areae not very distinct. First area with a median line, armed with a pair of blunt spines and 7-8 tubercles situated around the basis of each spine. Area 2 with a pair of laterally disposed low tubercles, otherwise smooth. Area 3 with a pair of strong and long spines, area 4 with a pair of very low tubercles. Free tergites with a pair of short blunt spines (these on the first area are smaller), anal plate with a transversal row of four hair pointed tubercles. Coxae 1-4 with two rows of hair pointed tubercles which are on the anterior portion of coxae greater, the greatest in the anterior row of coxae 1. Dorsal portion of coxae 4 with some tubercles and with one posterolaterally directed sharp tooth. Free sternites with one row of scattered, low and hair pointed tubercles.

Chelicerae somewhat enlarged, unarmed, basal segment with a dorsal projection.

Pedipalps 6,5 mm long, dorsally unarmed. Trochanters ventrally as well as dorsally with two short spines, femora ventrally with one basal blunt spinebearing tubercle and three very low hair pointed tubercles. Apicomedial portion of femora unarmed. Patellae unarmed, tibiae ventrolaterally with 4 spines, ventromedially with 5 spines, tarsi ventrolaterally with 5, ventromedially with 4 spines. Tarsal claw relatively long, curved.

Legs 16 - 44 - 28 - 34 mm long, slim, all long segments cylindrical. Femora, patellae, tibiae and metatarsi with scattered hairs, which are situated on the legs 3 and 4 on the very low tubercles. Tarsal segments with dense lanugo. Femora of legs 3 and 4 ventrally apically with one sharp tooth. Tarsal segments 6, 22 - 23, 7, 7, distitarsi of legs 1 and 2 with three segments. Basal segments of tarsi 1 swollen, endsegments of legs 3 and 4 with two untoothed claws and one relatively long curved pseudonychium, without scopulae.

Penis of the form shown in Fig. 13.

Colour of body (in alcohol): dorsal scute brown with darker reticulations, spines on the first area as well as all tubercles are lighter and dark brown marginated. Before

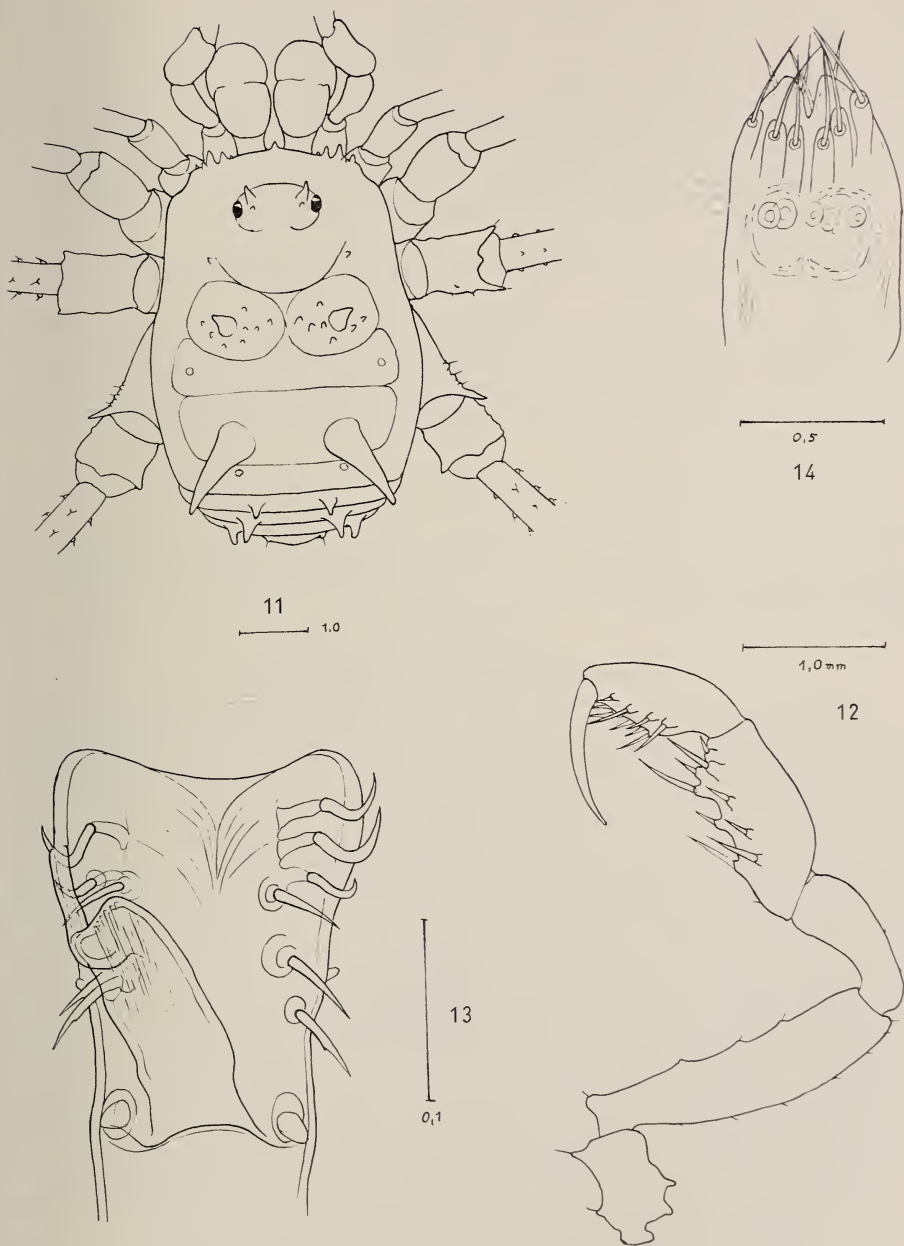


FIG. 11-14.

Rhopalocranaus bordoni sp. n., male holotype, female allotype (14)

11. Dorsal view of body; 12. Pedipalpus from medial aspect;

13. Distal part of penis from ventral aspect; 14. Ovipositor.

the posterior margin of area 3 and in the middle of area 4 is one narrow dark brown strip, lateral margins of scute as well as distal parts of spines on the area 3 are dark brown. Free tergites dark brown with contrasting light yellowish spines. Coxae brown, free sternites and anal plate darker brown. Chelicerae and pedipals light brown with blackish brown reticulations. All segments of legs are brown with darker brown reticulations on the distal parts of femora, patellae, basal and distal portions of tibiae. Distal parts of metatarsi and tarsal segments of legs 2-4 light yellowish. Metatarsi and tarsal segments of legs 1 darker brown with exception of endsegment which is light yellowish.

Holotype locality: Venezuela, Cueva Alfredo Jahn, Miranda, 21. II.1968, P. Strinati leg. with C. Bordon.

Nota. This described male holotype is a young but adult specimen with a cuticula not yet very sclerotised.

Female allotype: Body length 6,5 mm. Morphologically not very differing from the male holotype, only the tarsal segments of legs 1 are not swollen. Colour of body is darker, ovipositor of the form shown in Fig. 14. Female allotype locality is the same as this of the male holotype, and there are with the female paratype in the same vial of collection.

Female paratype: Body length 6 mm, colour and morphology is the same as those of female allotype.

Relations: This new species is related to *R. marginatus* Rwr, 1913, described from French Guiana. It differs mainly in the armature of dorsal scute, chelicerae, pedipalps, legs and colour.

***Ancistrotellus hauseri* sp. n. (Figs. 15-21)**

Male holotype: Body length 5,8 mm. Carapace before the eyemound smooth, only frontal margin in the middle with one short blunt spine and on the lateral corners with 3-5 tubercles. Eyemound widely removed from the frontal margin, provided with a pair of spines. Surface of carapace behind the eyemound and on the lateral boundaries with round scattered tubercles and fine granulations. Areae distinct, area 1 divided by the anterior margin of area 2 in two parts. All areae with round scattered tubercles, which are arranged to rows only on the boundaries of areae. Only third area is provided with a pair of spines, area 4 with two rows of tubercles. These tubercles of the posterior row are laterally greater; the anterior row joins with the medial row of tubercles on the lateral margin of scute which is provided laterally with second row of tubercles. Free tergites with one row of low hair pointed tubercles, anal plate with irregularly disposed very low tubercles. Coxae with scattered rounded tubercles which are arranged on the coxae 1 in one row, on the coxae 2 in two rows. Coxae 3 on the furrows between second and fourth coxa with a row of tubercles, coxae 4 ventrally posteriorly with one apical row of 6-8 dense tubercles. Dorsal portion of coxae 4 with some low tubercles and with one posterior sharp and medially curved spine which is posteriorly in the middle provided with two tubercles. Free sternites with a row of low tubercles.

Chelicerae not enlarged, unarmed, basal segment with dorsal elevation, second segment dorsally with some hair pointed low tubercles.

Pedipalps 7,6 mm long, dorsally unarmed. Femora ventrally with one basal hair pointed tubercle and on the apicomedial portion with one spinebearing tubercle. Patellae unarmed, tibiae ventrolaterally and ventromedially with four spines of which the 1 and 3 are greater, tarsi ventrolaterally and ventromedially with three spines. Tarsal claws long and curved.

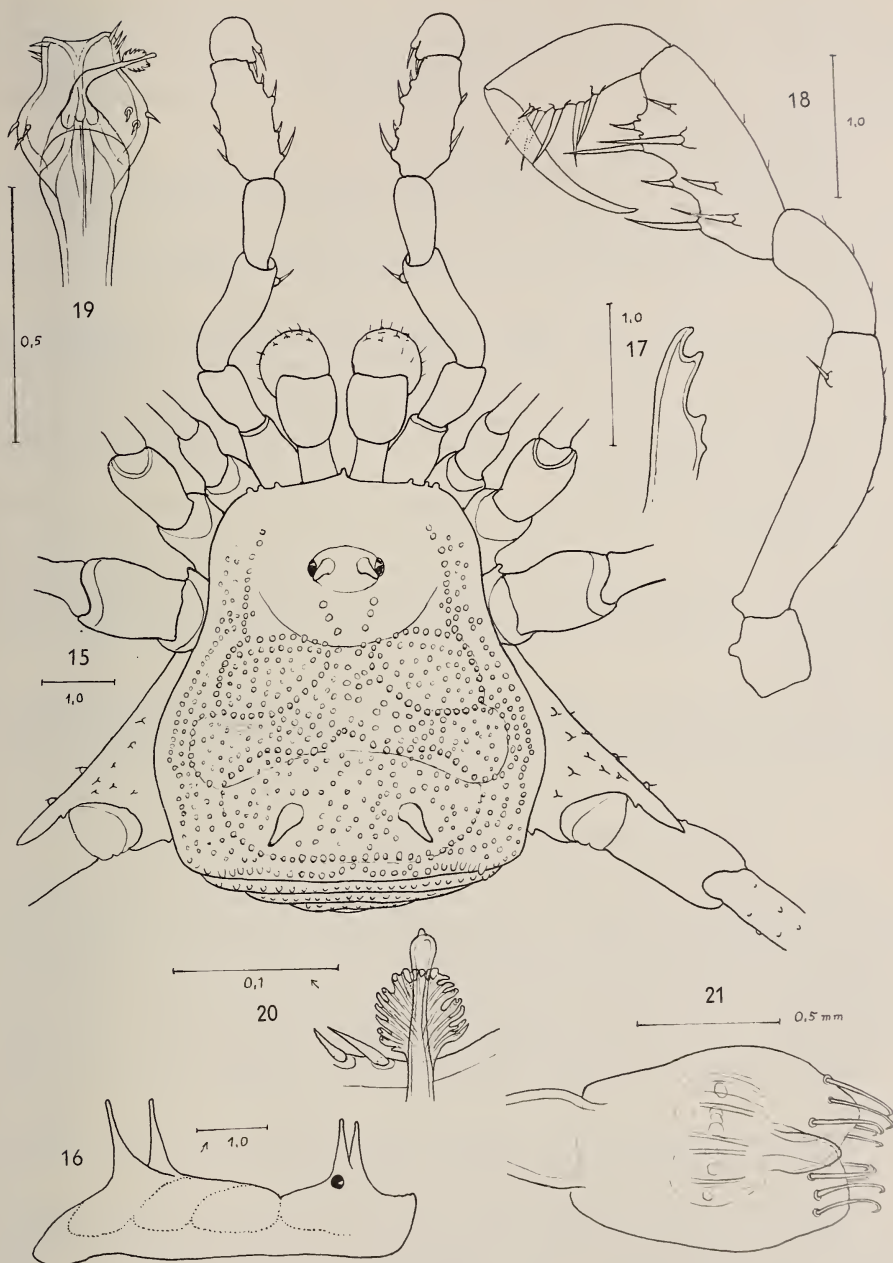


FIG. 15-21.

Ancistrotellus hauseri sp. n., male holotype, female allotype (21)

15. Dorsal view of body; 16. Lateral view of dorsal scute;
 17. Lateral view of tooth on the coxa 4; 18. Pedipalpus from medial aspect;
 19. Distal part of penis from dorsal aspect; 20. Distal part of stilus; 21. Ovipositor.

Legs relatively very long: 29 - 78 - 56 - 132 mm, long segments cylindrical and only with scattered hairs which are on the femora 4 growing from the very low tubercles. Tarsal segments: 7 - 8, 17, 10 - 11, 11, distitarsi of legs 1 and 2 with three segments. Apical segments of legs 3 and 4 with two untoothed claws and with one strong pseudonychium, without scopulae.

Penis of the form shown in Figs. 19-20.

Colour of body (in alcohol) yellowish light, free sternites are darker. The greater hemispherical granulations on the dorsal scute are lighter than the remaining surface. All extremities are yellowish light.

Holotype locality: Brazil, Gruta da Tapagem, Sao Paulo, 27-28 VII.1968, P. Strinati leg.

Female allotype: Body length 5,2 mm. The morphological differences are mainly in the form of dorsal portion of coxae 4: the sharp spine is shorter and not bifurcate. Legs are 20 - 25 - 36 - 60 mm long tarsal segments 7, 17, 10, 11, distitarsi of legs 1 and 2 with three segments. Pseudonychia on the legs 3 and 4 are shorter as in male holotype. Ovipositor of form shown in Fig. 21, colour of body and extremities is the same as in male holotype.

Allotype locality: Brazil, Gruta da Tapagem, 27.-28.VII.1968, in the same vial as the male holotype.

Paratype. In the collection is in the same vial one male paratype of the body length 5,2 mm. Morphologically not differing from the holotype, only the legs are shorter: 24, 64, 47, 86 mm, tarsal segments 7, 17, 10, 11, distitarsi of legs 1 and 2 with three segments.

Relations. This new species, representative of a genus abundant in species, is most related to the species *A. bifurcatus* Rwr., 1923. It differs mainly in the form of body, length of legs and their number of tarsal segments, dorsal armature of scute and colour.

***Leiostenus leiobuniformis albidecoratus* ssp. n. (Figs. 22-29)**

Male holotype: Body length 7,8 mm. Morphologically inclusive genital morphology not differing from males *L. leiobuniformis* Šilh., described from Trinidad. The conspicuous difference is in the colour pattern of body: in the middle of dorsal scutum occurs a row of milkwhite, sharp demarcated spots beginning on the hinder half of the eyemound. The proximal spot is the greatest, heart-shaped and reaches on the area 2. In the middle of the area 3 is one smaller round spot, on the area 4 two round spots.

Holotype locality: Venezuela, Cueva del Guacharo, Monagas, 18.II.1968, P. Strinati leg.

Paratypes: There are in the collection other six specimens of this subspecies, of which the white pattern is designed on the Figs. 23-28.

Relations. *Leiostenus leiobuniformis* has been described as a monotypic representative of the subfamily Leiosteninae. The holotype was found by N. A. Weber on Trinidad; there is, unfortunately, no more information on the label in the vial. In an other vial with the female allotype is a label: « Trinidad, Guacharo caves 23.IV.1916 » (?)

In 1975 MUÑOZ CUEVAS described a cavernicolous opilion *Phalangozea bordoni* which he considers to be a representative of the family Phalangodidae (the subfamilial appertenance is not mentioned). To my mind, according to the description and the illustrations, this species appertains also to the subfamily Leiosteninae of the family

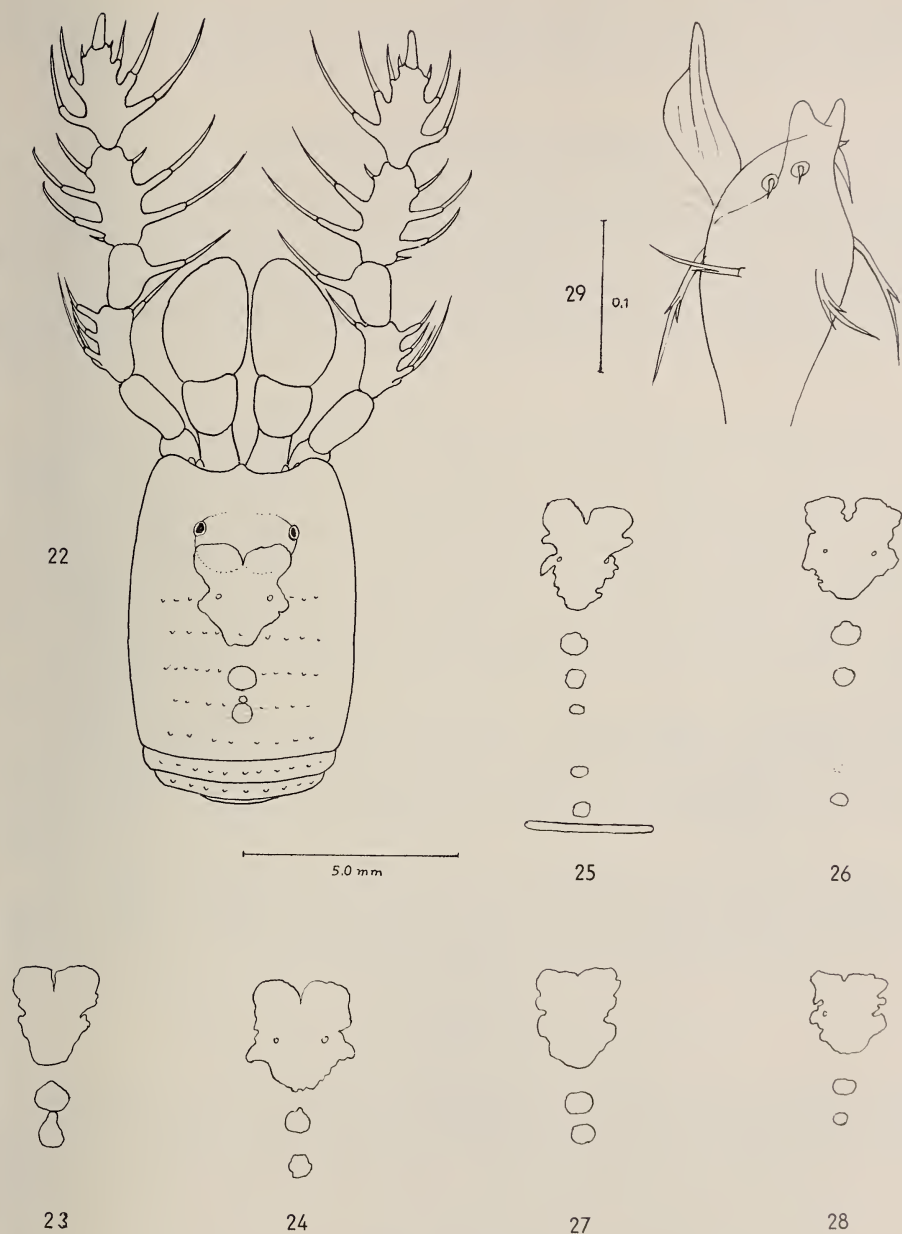


FIG. 22-29.

Leiostenus leiobuniformis albidecoratus ssp. n.,

male holotype, female allotype (25), paratypes (23, 24, 27, 28)

22. Dorsal view of body; 23., 24. White pattern of scute of males paratypes;

25. White pattern of scute of female allotype; 26. White pattern of scute of female paratype;

27., 28. White pattern of scute of juveniles.

Agoristenidae for which the threefold spines on the operative part of penes are very characteristic. *Phalangozea bordoni* is thus related to *Leiostenus leiobuniformis*, but it is more adapted for the troglitic conditions (eyemound and eyes are absent).

Arganotus strinatii sp. n. (Figs. 30-32)

Male holotype: Body length 2,8 mm. Carapace with low tubercles, without spines. Eyemound situated nearly at the frontal margin of carapace, in the form of blunt cone, covered with small tubercles. Areae not very distinct, first area without median line. Areae 1-4 with greater rounded irregularly disposed tubercles, only on the posterior margins of these areae are arranged in one row. Fifth area with two rows of tubercles joining at the lateral boundaries of scute with two rows of tubercles situated

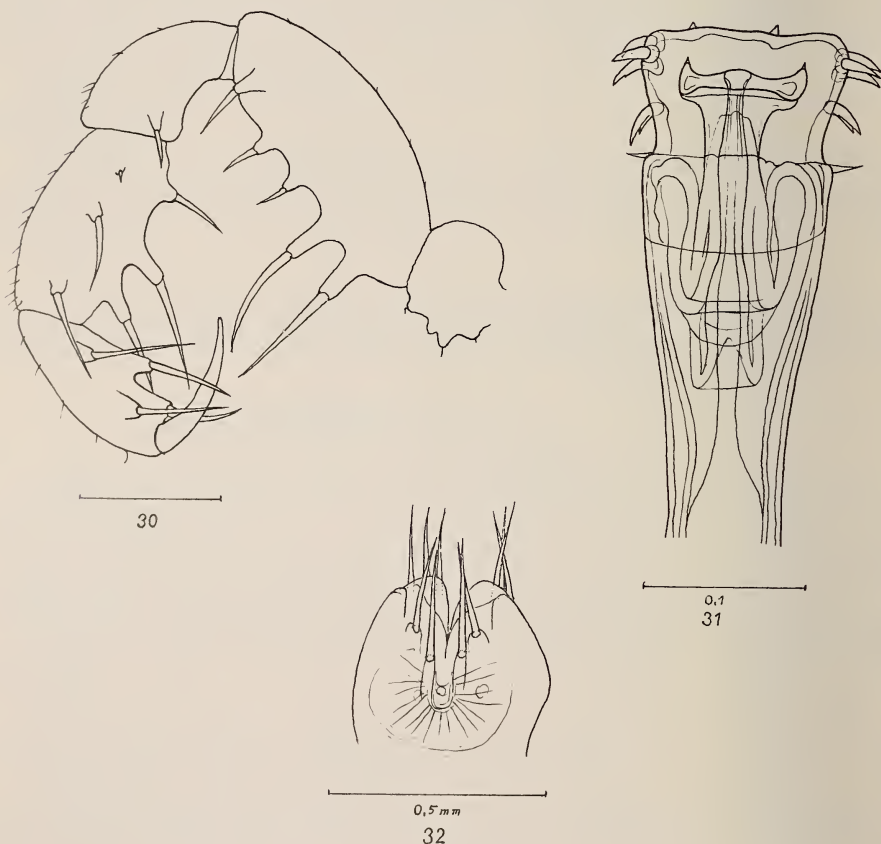


FIG. 30-32.

Arganotus strinatii sp. n.

30. Pedipalpus from medial aspect, male holotype;
 31. Distal part of penis from dorsal aspect, male holotype;
 32. Ovipositor, female allotype.

on margins. Free tergites with two rows of tubercles, anal plate with three rows. Coxae covered with similar rounded tubercles, free sternites with one row.

Chelicerae enlarged, smooth, covered only with hairs, basal segment without dorsal elevation.

Pedipalps 2,94 mm long, dorsally unarmed. Trochanters ventrally with 3-5 tubercles, femora ventrally with two long basal spines and two smaller spines situated on the apical half of segment. Apicomedial portion of femora with one spine. Patellae medially with one apical spine, tibiae ventrolaterally with three spines, ventromedially with one proximal spinebearing tubercle and two spines, tarsi ventrolaterally as well as ventromedially with two spines. Trasal claws slim, shorter than tarsi.

Legs 4,2 - 6,3 - 5,0 - 6,2 mm long. All long segments cylindrical, unarmed, only with short hairs. Metatarsi 3 swollen in the form of a spindle. Tarsal segments: 4, 6, 5, 6, distitarsi of legs 1 with two, of legs 2 with three segments. Endsegments of legs 3 and 4 with distinct scopulae.

Penis of the form shown in Fig. 31.

Colour (in alcohol). Body brown. Carapace with dark brown reticulations, areae 1-5 with a transversal strip of dark brown reticulations which is in the middle lighter, on the free tergites is a similar strip, in the middle interrupted. Coxae and free sternites with similar darker reticulations, two distal sternites as well as anal plate blackish brown. Chelicerae somewhat lighter brown than the body, basal segment dorsally with fine reticulation, pedipalps yellowish brown. Legs brown with lighter rings on the femora and tibiae. Metatarsi and tarsi of legs 1 and 2 brown, metatarsi of legs 3 and 4 with one middle and one apical lighter ring, apical segments of tarsi yellowish brown.

Holotype locality: Guatemala, cueva Chirrepeck, Alta Verapaz, 6 and 8.IV.1973, P. Strinati leg.

Female allotype: Body length 2,95 mm. Morphologically not differing from the male holotype, only the metatarsi 3 are not swollen. Ovipositor of the form shown in Fig. 32, the colour of body and extremities is the same as in male holotype. Female allotype locality is the same as that of male holotype, both specimens were in the same vial.

Relations. The genus *Arganotus* has been described from Mexico in 1978, at this time only the species *A. macrochelis* (Goodnight and Goodnight, 1953) from Mexico and *A. robustus* Šilh., 1978 from Haiti were known. *A. strinatii* differs from two mentioned species distinctly in the form of penis, dorsal armature of body and colour.

Kalominua bicolor Henriksen and Sørensen, 1932

One male from this species has been found in Venezuela, cueva Alfredo Jahn, 21.II.1968. I had the opportunity to compare our specimen with the typical series from the Zool. Mus. in Copenhagen and I have found no evident differences between them.

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